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The Effects of Group-Based Context Personalization on Learning Outcomes and Motivation

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THE EFFECTS OF GROUP-BASED CONTEXT PERSONALIZATION
ON LEARNING OUTCOMES AND MOTIVATION

by

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ABSTRACT

THE EFFECTS OF GROUP-BASED PERSONALIZATION ON LEARNING OUTCOMES AND MOTIVATION

Jessica J. Resig
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The rise of online course enrollments in higher education has highlighted the need to establish and validate effective online instructional strategies focused on improving learning outcomes and affective responses towards instruction. One such strategy, group-based context personalization, frames instructional materials within contexts relevant to shared interests among groups of students. This study sought to investigate the effects of group-based context personalization on learning outcomes and motivation towards the instruction when materials were contextualized based on a learner's academic major.

This study employed a true experimental design to explore the effects of group-based context personalization on learning outcomes and motivation for 20 undergraduate fashion merchandising majors enrolled in a four-year institution in the East Central Region of the U.S. Participants were randomly assigned to either the personalization or non-personalization group. The personalization group received an online unit on fair use and copyright contextualized with fashion merchandising examples, while the non-personalization group received the same instructional materials but with general, education-related examples. Both groups completed Keller's (2010) Instructional Materials Motivation Survey and a posttest that consisted of recall, general transfer, and fashion merchandising-related transfer questions. This study found no significant between-groups differences on learning outcomes or motivation towards the instruction,

though the within-groups posttest performance on general education questions did approach significance over performance on fashion merchandising transfer questions. Suggestions for future research and implementation of group-based context personalization instructional strategies are provided.

Keywords: group-based context personalization, online learning, motivation, interest.

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This dissertation is dedicated to my husband and son, and to our family and friends. Thank you for your continuous love, support, and encouragement.

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CHAPTER 1

INTRODUCTION

The number of U.S. higher education institutions offering some form of online education rose from 71.7% in 2002 to 86.5% in 2012, with 62.4% of institutions offering at least one fully online program (Allen & Seaman, 2013). By 2015, 29% of U.S. undergraduate students and 34% of graduate students reported taking at least one online course (Allen & Seaman, 2017). While a 2009 U.S. Department of Education meta-analysis of 50 study effects found that learners in online and hybrid courses performed as well as or modestly better on average, than students learning the same material in a residential classroom setting (U.S. Department of Education, 2009), attrition rates for online courses remain higher than their face-to-face counterparts (Diaz, 2002; Patterson & McFadden, 2009; Rovai, 2003). As these enrollment and attrition trends persist, the need to establish and validate effective and robust online instructional practices continues to grow in importance.

Instruction delivered online typically integrates various types of media, including a combination of text, images, audio, or video arranged to form hypermedia elements, drills, simulations, and tutorials (Alessi & Trollip, 2001). Although online instruction has the potential to incorporate a variety of the media types listed, text-based instruction remains the most commonly used format through which to deliver information and feedback and to facilitate interactions (Girasoli & Hannafin, 2008). This unimodal content presentation format does not inherently utilize both the learner's verbal and pictorial information processing channels (Mayer, 2009), which reinforces the necessity for creating content built upon sound instructional strategies to facilitate learning.

One such strategy that shows the potential to improve learners' affective responses toward instructional materials and overall learning outcomes is the personalization of online materials. Text-based instruction delivered through a content management system may be personalized to integrate details relevant to the learner, including hobbies, interests, major areas of study, or personal details such as favorite musicians, friends, or objects (Davis-Dorsey, Ross, & Morrison, 1991; Walkington & Hayata, 2017; Walkington & Sherman, 2013). This type of personalization piques learners' interests in and attitudes towards instruction (Awofala, 2014; Walkington & Bernacki, 2014) and activates learners' existing mental images (Gagné, 1965) to facilitate the assimilation of new information (Davis-Dorsey et al., 1991). As advances in adaptive interventions receive increased attention in higher education (Association of Public Land-grant Universities, 2015), personalized learning environments may offer promising, cost-effective (Cordova & Lepper, 1996) opportunities to capitalize on learner interest to improve performance.

Personalization involves customizing a learning environment (Walkington & Bernacki, 2014) to the learner's prior knowledge, goals, preferences, and interests (Collins & Halverson, 2009). On a broad scale, Mayer's cognitive theory of multimedia learning considers the integration of conversational language and style a type of personalization that uses social cues to affect learning (Mayer, 2005, 2009). A more focused type of personalization, context personalization involves customizing the theme to which materials relate (Ross, 1983). For example, during an algebra lesson designed using context personalization, a learner interested in music may receive lesson content and examples written with music as the central unifying theme.

Walkington and Bernacki (2014) outline four approaches to context personalization based on the depth, grain size, and level of ownership associated with the approach. *Depth* refers to the level of connection to the learner, whether shallow and superficial or meaningfully related to a learner's prior experiences and interests. *Grain size* considers whether content is personalized to the experiences of an individual learner or to broader group-based interests. *Ownership* concerns the source of personalization, whether a course designer or developer, the instructor, or the learner generates the customized content. Table 1 outlines each of these four approaches in detail.

Table 1

Summary of Approaches to Context Personalization (Walkington and Bernacki, 2014, p. 161)

Type	Depth	Grain Size	Ownership
1. "Fill-in-the-blank" personalization	Very shallow	Small/specific to individual	Some student ownership
2. Personalization to individual topic interests	Moderate	Medium/specific to all individuals interested in a topic	Little student ownership
3. Personalization to group topic interests	Low to moderate	Large/targeted to groups of students with potentially different interests	No student ownership
4. Utility-value approaches	Deep	Small/specific to individual	Student owns personalization

From "Motivating students by 'personalizing' learning around individual interests: A consideration of theory, design, and implementation issues," by C. A. Walkington and M. L. Bernacki, 2014, *Motivational Interventions*, p. 161. Copyright 2014 by Emerald Publishing. Reprinted with permission (Appendix A).

Each of Walkington and Bernacki's (2014) four identified approaches to context personalization poses a series of benefits and limitations based on the depth, grain size, and level of ownership. For example, the first approach, "fill-in-the-blank" personalization, integrates highly specific information into instructional materials by entering learner-provided details into designated blanks (e.g., names of friends or family members, favorite sports, favorite songs, etc.). Though learners may have some sense of ownership over this content, the materials themselves risk using seductive details in inauthentic applications that can sometimes feel "artificial" (Walkington & Bernacki, 2014, p. 155).

Walkington and Bernacki's (2014) second and third personalization design approaches adopt larger grain sizes. The second design approach calls for crafting lesson materials for individual students or small groups based on topics of interest that emerge from interviews or surveys, which allows course creators to develop more authentic connections between learner interests and the content. This strategy requires a considerable time investment and pre-planning, and it raises scalability issues when implemented with large groups of students. The third approach, group-based personalization, employs the use of interests relevant to the entire student group. This tactic further reduces the individual sense of student ownership as a trade-off for high levels of scalability and feasibility of integration in a variety of learning environments.

The fourth design approach invites students to generate their own applications to areas of personal interest or to articulate how the instruction may be relevant to them. Though this strategy offers the highest level of student ownership, the utility-value approach also requires a high level of instructor scaffolding and may not expose learners to a wide variety of applications of specific concepts within the instructional materials (Walkington & Bernacki, 2014).

The present study centers on the use of context personalization based on group interests derived from a shared academic major, which utilizes Walkington and Bernacki's (2014) third approach to personalization. Though this strategy limits individual student ownership, building content and examples based upon students' academic major affords course designers the opportunity to draw valued connections between the content and learners' intended future areas of professional practice. The group-based personalization design approach can readily scale based on the size of the audience and, because of its focus on broad commonalities, does not require complex technologies or resources for implementation.

Existing research suggests that context personalization increases deep learning in multimedia environments, as well as the transfer of knowledge to novel problem-solving situations (Anand & Ross, 1987; Walkington & Sherman, 2013). However, many prior studies have been limited to participants in K-12 environments (Akinsola & Awofala, 2009; Cakir & Simsek, 2010; Cordova & Lepper, 1996; Ku & Sullivan, 2000) or have addressed general mathematics- or science-related problem-solving activities (Høgheim & Reber, 2015; Reber, Hetland, Chen, Norman, & Kobbeltvedt, 2009; Ross, 1983; Ross, McCormick, Krisak, & Anand, 1985).

Adult learners, especially within a shared academic major, may have more well-developed contextual knowledge and existing schema (Anderson, 1984; Mayer, 1975), as well as similar interests (Hidi, 2006) within which to frame new information. Customizing instructional materials through the use of examples based on learners' academic major could potentially benefit students taking online learning modules by utilizing these collective areas of knowledge and interest. This study seeks to extend current research by evaluating the extent to which group-based context personalization influences undergraduate fashion merchandising students'

learning outcomes during an asynchronous online information literacy lesson, as well as students' reported levels of motivation towards the instruction.

CHAPTER 2

LITERATURE REVIEW

In his essay series “Acts of Meaning,” Bruner (1990) challenges us to rethink the cognitive revolution as a call for a more multifaceted and integrative understanding of meaning-making as the interactions between the mind and broader cultural influences, rather than cognition as simple information processing. Bruner posits that we must consider the roles of context and culture as critical components of a complex meaning-making process, in addition to the physiological processes of encoding and retrieval. Communicating information therefore becomes an ongoing dialogic, social (Shotter, 2000), and narrative experience that draws upon the norms and tendencies of the cultural group to provide a schematic frame for constructing memory (Bartlett & Burt, 1933; Mandler & Johnson, 1977).

With Bruner’s work as a foundation, the present study is built upon two sets of theoretical assumptions. First, drawing from schema theory (Anderson, 1984) and the principles of situated cognition and expertise development (Bransford, 2000; Brown, Collins, & Duguid, 1989), personalized learning materials have the potential to improve comprehension and learning outcomes by facilitating meaning-making through the use of familiar, culturally-relevant contexts and narratives within the instructional content. Second, framing novel information within familiar contexts of interest to learners (Anand & Ross, 1987; Hidi, 2001) may lead to improved learner motivation (Hidi & Harackiewicz, 2000). The following systematic literature review explores these assumptions as they relate to learners’ schema formation, shared narratives, problem-solving behaviors, and motivation.

Schema Formation and Situated Cognition

Schemata are mental representations structured to signify relationships among their components (Anderson, 1984; Bartlett & Burt, 1933). These schemas combine to form mental models, which can be developed, used, and altered during learning as learners acquire proficiency. According to Mayer's (1975) three-stage model of internal processing, we must consider (a) how much information the learner receives, (b) how much prerequisite knowledge the learner has, and (c) what aspects of the learner's prior knowledge are activated during learning. Grounding complex information within already well-developed schemas and building upon prior knowledge during the learning process allows learners to assimilate new information within the framework of existing schemas, making the overall learning process more efficient (Anderson, 1984; Davis-Dorsey et al., 1991; Mayer, 1975; Ross, McCormick, & Krisak, 1986).

As an integrative framework, situated cognition steps beyond schema theory to posit that learning occurs as a dynamic interaction between individual and social scales (Bredo, 1994; Wilson & Myers, 2000). Among its foundational principles, situated cognition calls for the use of authentic contexts and learning environments designed around shared histories, norms, beliefs, and rules (Awofala, 2014; Brown et al., 1989; Wilson & Myers, 2000). Rather than viewing the learner as a participant within an environment, situated cognition considers the learner and environment a "mutually constructed whole" (Bredo, 1994, p. 28). These principles support the development of expertise as learners become better prepared to engage with information and problems through the real-world lens of a specified domain (Bransford, 2000; Hung & Der-Thanq, 2001; Wilson & Myers, 2000).

Awofala (2014) notes that cognition is situated within, rather than isolated from, context. By framing instructional materials within group-based interest areas, the personalization of

content has been shown to increase performance on problem-solving activities (Akinsola & Awofala, 2009; Hart, 1996; Lopez & Sullivan, 1992) and improve affective responses to instruction (Høgheim & Reber, 2015; Ku & Sullivan, 2000; Ross et al., 1986). Ainley, Hidi, and Berndorff (2002) suggest that these improved affective responses may also lead to increased persistence and learning. However, creating instructional experiences that use group-based context personalization poses the challenge of trying to activate prior knowledge through the use of generalized narratives that may or may not be shared by learners (Akinsola & Awofala, 2009; Ross et al., 1985).

Narrative and Group-Based Context Personalization

To achieve group-based context personalization, content creators must construct narratives that frame and communicate content within a given shared area of interest (Walkington & Bernacki, 2014). Gee (2007) uses the term “semiotic domain” to refer to a set of practices that attribute specific meanings to words, symbols, images, and artifacts that may be exclusive to their unique fields or contexts. For example, rock music, video games, sports, careers, and major areas of study are all semiotic domains, and individuals who engage in these domains are members of the domain’s associated *affinity group* (Gee, 2007). Authentic involvement in a semiotic domain provides relevance (Gee, 2007) that can help to situate and integrate learners into the communal, shared interpretive system of the culture (Bruner, 1990). By personalizing content through actively engaging in a narrative tied to a semiotic domain, Gee (2007) suggests that learners will: (a) experience the world in new ways; (b) gain potential to join affinity groups affiliated with specific semiotic domains; and (c) gain resources that prepare learners for future learning and problem solving within the domain.

Context personalization based on common group interests, therefore, requires that the content author carefully considers and actively generates meaningful, authentic contexts (Akinsola & Awofala, 2009; Walkington & Hayata, 2017; Walkington & Bernacki, 2014) within given semiotic domains. For instance, framing a lesson within the context of an interest such as aviation requires situating meaning within the sorts of experiences and terminology one may encounter when flying planes. Rather than being transparent or invisible to the learner, the narrative becomes inseparable from the content being taught (Bredo, 1994; Bruner, 1990). Likewise, the author or narrator may become “visible” to the learner through direct statements and comments to the learner. These simulated interactions provide social cues that can prime deeper cognitive processing (Mayer, 2005, 2009; Moreno & Mayer, 2000; Nolen, 1995; Paxton, 2002).

In early studies on group-based personalization, researchers found that framing statistics lessons within the domain of an undergraduate learner’s academic major (either nursing or education) improved learning outcomes across a number of mathematics question types (Ross, 1983; Ross et al., 1986). While these findings have remained consistent with a number of newer studies on mathematics achievement (Anand & Ross, 1987; Cordova & Lepper, 1996; Walkington & Sherman, 2013), other researchers have shown no significant improvements in learning outcomes from the use of contextualized instruction (Bates & Wiest, 2004; Cakir & Simsek, 2010; Ku & Sullivan, 2000). For example, Høgheim and Reber (2015) found that contextualizing mathematics instruction for middle school students using interest areas (e.g., sports, music, movies, gaming, literature, and internet) did not significantly improve achievement, but did enhance learners’ situational interest, effort, and perception of the value of the instruction. These differences may be attributed to characteristics of the learners, such as age

and prior knowledge, the domain within which the content is framed, or the manner in which contextualization was written.

Creating Group-Based Personalization

Within the body of research surrounding group-based personalization, three primary approaches to designing content have emerged: contextualizing the instructional unit itself (Akinsola & Awofala, 2009; Lopez & Sullivan, 1992), contextualizing test items delivered after an instructional unit (Bates & Wiest, 2004; Hart, 1996), or contextualizing both the instruction and the assessment items (Anand & Ross, 1987; Ku & Sullivan, 2000; Vukmirovic, 2013).

While some prior studies suggest that learners who received personalized instruction outperform their peers on posttest items regardless of the item type (personalized versus general context), Ku and Sullivan (2000) found that lower ability students tended to score better and showed greater learning gains on personalized items than non-personalized items. Similarly, Anand and Ross (1987) found that elementary math students who received personalized instruction performed significantly better on posttest items that employed the same type of personalization used during the learning process. Limited research exists concerning the relationship between content personalization and test item personalization for advanced learners participating within a shared semiotic domain (Cordova & Lepper, 1996; Ross, 1983; Ross et al., 1985), which highlights the need for continued research in this area.

Challenges of Constructing Group-Based Narratives

A number of risks and challenges surround the creation of effective group-based context personalization within instructional units. For instance, authors must strive to generate authentic and accurate materials that address a potentially broad set of learner interests in a particular domain (Walkington & Bernacki, 2014). Generating examples based on input from the majority

of learners without also accounting for the responses and preferences expressed by minority groups may alienate learners whose prior knowledge, expectations, and experiences do not align with the majority. For example, Akinsola and Awofala (2009) found that achievement on and self-efficacy towards mathematics word problems differed between 160 male and female secondary students who had received personalized instruction. To achieve personalization, the researchers issued a biographical survey and used the most popular answers to generate instructional materials, which may have resulted in gender bias from sex-based questions and contexts that favored male students. Though these findings are consistent with some research that illustrates gender differences in performance of contextualized instruction (López & Sullivan, 1991; Murphy & Ross, 1990), others have found no difference in performance based on gender (Lopez & Sullivan, 1992; Simsek & Cakir, 2009). In addition to continued exploration of gender bias in instructional materials, future research on personalization should explore the possible influences of other types of biases that may occur from the generalizations employed when writing group-based examples.

In addition to accounting for potential biases, integration of narrative elements and comments to the learner must be measured and intentional to maintain coherence and limit the possibility of increasing cognitive load through the presentation of extraneous detail (Mayer, 2009; Mayer, Heiser, & Lonn, 2001). Heilman et al. (2010) suggest avoiding the use of template-style personalization that plugs information about the learner into corresponding blanks in the instructional unit; instead, content creators should frame instruction meaningfully within the desired context to reduce the likelihood of adding extraneous details. Additional research is also needed to establish boundary conditions related to the amounts and effectiveness of context personalization and to understand the roles and influences of associative learning (Ross, 1983)

and encoding specificity (Tulving & Thomson, 1973) across a variety of learning environments and tasks on transfer of knowledge to novel situations.

Facilitating Problem Solving with Personalization

Due to the pervasive nature of problem solving in everyday life, problem-solving skills are regarded as a critical outcome of learning. Jonassen (2000) defines problem solving as a goal-directed sequence of operations that occurs within an internal mental problem space, and which requires an “activity-based manipulation of the problem space” (p. 65). Problems may be further defined by four characteristics: the *domain* or context in which they occur, the *type* of problem, the *process* used for solving the problem, and the problem *solution* (Jonassen, 1997). These characteristics lead to a continuum of three broad problem categories: puzzle problems, well-structured problems, and ill-structured problems. Well-structured problems require applying a prescribed set of concepts and principles within a specific domain to achieve a known goal, while ill-structured problems are typically emergent, contain unknown elements, require learners to make judgments, and do not have a defined goal or given solution. Puzzle problems are content-neutral, well-structured problems that are often not related to everyday life or school learning (Jonassen, 1997).

Personalization applied to problem-solving activities provides a meaningful framework and activates existing knowledge structures within which to operate during the learning process (Ross, 1983; Walkington & Sherman, 2013), and extensive research exists surrounding the effects of personalization for well-structured applications in mathematics (Areelu & Akinsola, 2014; Davis-Dorsey et al., 1991; Høgheim & Reber, 2015; Ku & Sullivan, 2000; Renninger, Ewen, & Lasher, 2002; Ross et al., 1985). In a recent study on the effects of context personalization on mathematical problem-solving skill acquisition, Walkington and Sherman

(2013) asked 145 9th grade Algebra I students to engage with a cognitive tutor that taught linear functions through the use of either standard problems for the unit or problems customized to a topic area of interest to the learners. Personalization was found to improve learner performance on both easy and hard knowledge components, which ranged from recall and identification to writing algebraic expressions. Additionally, the observed benefits from having received personalized instruction carried over as sustained performance improvement in subsequent instructional units (Cordova & Lepper, 1996; Walkington & Sherman, 2013). The researchers hypothesized that the use of context personalization may have provided meaningful grounding and situational models for problem solving, as evidenced by increased problem readability and relevance, as well as lower rates of large conceptual errors.

While this observed performance improvement is consistent with some prior research (Anand & Ross, 1987; Hart, 1996; Ross, 1983), the findings contrast other studies that have observed no improvement for learners receiving context-personalized mathematics instruction (Bates & Wiest, 2004; Cakir & Simsek, 2010; Høgheim & Reber, 2015; Ku & Sullivan, 2000). For example, a more recent and larger-scale study by Høgheim and Reber (2015) recruited 736 middle-school students to complete an online calculus module and found that, while context personalization increased situational interest, value perception, and task effort, learning outcome improvements were limited to those learners who reported low perceived competence in mathematics prior to beginning the instructional unit.

Personalization Treatment Length

The findings detailed above raise questions about the relationship between personalization, prior knowledge, and expertise, as well as the effects of personalization over the course of longer treatments. The length of time spent employing personalization strategies for learning activities varies greatly, from single tests or lessons (Awofala, 2014; Cakir & Simsek, 2010; Davis-Dorsey et al., 1991) to games, tutoring systems, or instructional units that may span several sessions or weeks (Areelu & Akinsola, 2014; Cordova & Lepper, 1996; Heilman et al., 2010).

For example, a number of researchers have explored the use of personalization strategies in fifth-grade mathematics using differing treatment lengths. Davis-Dorsey et al. (1991) studied 59 fifth-grade students' performance on personalized mathematics word problems with no instructional intervention and found that participants performed significantly better across a series of problem types when problems integrated personalized information. The researchers hypothesized that personalized contexts may allow learners to create more accurate internal representations of the problems (Davis-Dorsey et al., 1991; de Corte, Verschaffel, & de Win, 1985).

Ku and Sullivan (2000) studied 72 fifth-grade students during two concurrent 50-minute class sessions in which learners were taught to solve multi-step problems with either personalized or non-personalized instruction. Though the personalization treatment did not yield significant differences in posttest performance overall, lower-ability students scored significantly better on personalized posttest questions than on non-personalized posttest questions. Additionally, participants in the personalized instruction group reported more positive attitudes towards the instruction.

Cordova and Lepper (1996) designed a computer-based game to teach 70 fourth- and fifth-grade students to solve problems using the hierarchy of the order of operations. Participants were exposed to a series of three variations of the game based on personalization, a fantasy space-themed context, and learner choice over the course of three 30-minute sessions delivered approximately five days apart. Results indicated that personalization, both alone and in combination with the other treatments, improved performance, attitudes, perceived competence, and engagement.

While the above findings illustrate that personalization may serve as a robust intervention for increasing learning in well-structured problem solving applications, especially for novice learners, differences in instructional time must be considered in conjunction with the variances in learners' prior knowledge and experience. Additionally, little is known regarding the effects of personalization on problem solving within ill-structured domains or authentic learning environments at the post-secondary level. These areas present an opportunity for furthering the research surrounding the use of personalization for schema formation and the development of expertise.

Motivation

According to Martinez (2010), motivation refers to “all processes that precede a decision to pursue a particular goal” (p. 154). A broad range of motivational theories reflect the complex and multi-faceted nature of this area of study, including theories related to beliefs about events (e.g. attribution theory, locus of control), beliefs about self (e.g. cognitive dissonance theory, self-efficacy theory), and beliefs based on general motives (e.g. drive theory, expectancy-value theories).

To synthesize motivational theories for streamlined use within instructional design applications, Keller's ARCS model of motivational design (Keller, 1987, 2010) focuses on the dimensions of attention (A), relevance (R), confidence (C), and satisfaction (S). Keller (2010) defines each of the four dimensions as follows: *attention* refers to catching a learner's interest and rousing their curiosity; *relevance* concerns meeting a learner's needs or goals; *confidence* relates to promoting a learner's belief in and control over success; and *satisfaction* reinforces a learner's accomplishments with extrinsic or intrinsic rewards. Three sub-categories under each dimension, along with corresponding design considerations (Keller, 1999, 2010), constitute a twelve-item matrix for effectively addressing motivation during each phase of the design process (Table 2). Keller's ARCS model has been validated across a range of learning environments and instructional applications (Loorbach, Peters, Karreman, & Steehouder, 2015; Means, Jonassen, & Dwyer, 1997; Small & Gluck, 1994).

Table 2

Categories of ARCS Model of Motivational Design (Keller, 2016)

Attention	Relevance	Confidence	Satisfaction
A1 Perception arousal	R1 Goal orientation	C1 Learning requirements	S1 Intrinsic reinforcement
A2 Inquiry arousal	R2 Motive matching	C2 Success opportunities	S2 Extrinsic rewards
A3 Variability	R3 Familiarity	C3 Personal control	S3 Equity

From "What are the ARCS categories?" by J. M. Keller, 2016, *ARCS Explained*. Retrieved from <https://www.arcsmodel.com/arcs-categories>. Copyright 2016 by John M. Keller. Reprinted with permission (Appendix A).

Group-based context personalization has the potential to impact all four dimensions of the ARCS model. Prior research regarding the relationship between personalization and motivation has focused primarily on the impacts of personalization on learner interest, which corresponds to the “attention” component of Keller’s model. Hidi (2006) defines interest as a “motivational variable, as well as a psychological state that occurs during interactions between persons and their objects of interest, and is characterized by increased attention, concentration, and affect” (p. 70). Interest also describes the tendency of an individual to re-engage with the same content, ideas, or objects and form lasting pre-dispositions. Students engage with learning experiences when those experiences match their needs, excite participation, and increase motivation (Mincu, 2012).

Because personalization seeks to elicit the increased “attention, concentration, and affect” (Hidi, 2006, p. 70) of interest by integrating content, objects, and ideas that appeal to the learner, interest functions as an appropriate consideration when exploring the effectiveness of personalized instructional interventions. By acknowledging the affective factors of motivation, this line of personalization research moves beyond a purely technical view of how information is stored and processed toward a more holistic view of the learner and the learning process (Hidi, 2001).

Interest can be divided broadly into two categories: situational interest and individual interest. Situational interest is a momentary state of increased attention and motivation that may or may not hold over time (Renninger et al., 2002). This state of interest is often sparked by affective and environmental factors, and it may or may not lead to re-engaging with the content or topic in the future. Individual interests are more developed, long-term preferences for topics for which an individual has more stored knowledge and values than other topics. While affect of

situational interest may be positive or negative (e.g. sadness, anger, or fear may trigger sustained attention on a topic), individual interests tend to be associated with more positive affective responses.

As Hidi (2001) notes, situational interest may be one way for educators to motivate students who do not have preexisting individual interests in a topic to help them improve academic performance. Likewise, repeated situational interest in a topic may lead to longer-term individual interest. Group-based context personalization capitalizes on broad shared individual interests and is used throughout the learning process, including during both instruction and assessment, to frame information and problems within the domain of the given context (Ross, 1983). For example, Heilman et al. (2010) developed a Spanish-language tutor that improved students' vocabulary acquisition by selecting articles matched to learner individual interest areas. Ainley et al. (2002) conducted research on the relationship between interest and learning outcomes and found that the strongest model linking the two was the relationship between interest and affective response, followed by affect's relationship to persistence in the text, and then the relationship of persistence to learning. While the body of research considering the relationship between personalization and interest continues to grow (Ainley et al., 2002; Hidi, 2001, 2006; Høgheim & Reber, 2015; Renninger et al., 2002), studies concerning personalization related to motivation as a whole are limited (Vukmirovic, 2013).

Purpose of Research

Though group-based context personalization presents an opportunity for efficient, cost-effective (Cordova & Lepper, 1996) adaptation of course content with the potential to impact learning outcomes and affective responses, gaps still exist within the literature. For instance, several prior studies were conducted in K-12 environments (Akinsola & Awofala, 2009;

Høgheim & Reber, 2015; Ku & Sullivan, 2000; Renninger et al., 2002), used problem solving, recall, or transfer of knowledge within quantitative mathematics content (Anand & Ross, 1987; Davis-Dorsey et al., 1991; Walkington & Sherman, 2013), and offered little information concerning strategies and best practices for adapting an instructional unit for adult learners' academic major or areas of interest. Additional research must continue to explore the effects of personalization on all four factors of learner motivation articulated in the ARCS model (Keller, 2010), especially in online courses where instructors and course designers face the additional challenge of motivating students who are separated from the instructor by distance and time.

This study sought to explore the effects of group-based context personalization in an online, asynchronous copyright and fair use lesson on undergraduate fashion merchandising students' learning outcomes and motivation toward the instruction. This research also extends the literature on context personalization design approaches by contributing strategies for using commonly-available learning management system features to customize online, text-based instruction.

Research Questions

This research examined the effects of group-based context personalization in online, text-based instruction on participants' learning outcomes and motivation. The following research questions guided this study:

1. To what extent does group-based context personalization of learning materials influence learner performance on a criterion-referenced content knowledge test?
2. To what extent does group-based context personalization of test items influence learner performance on a criterion-referenced content knowledge test?

3. How does group-based context personalization affect learners' motivation toward instruction?

CHAPTER 3

METHODS

This chapter details the methods employed in conducting this study. These methods include the description and protection of participants, recruitment strategies, research design, instructional materials, instruments, and procedures, as well as the data analyses used to address the identified research questions.

Participants

This study invited participation via email (Appendix B) and in-class visits from students enrolled in six courses in the undergraduate fashion-merchandising program at a four-year public university in the East Central Region of the U.S. Of the 94 students collectively enrolled in the six participating courses, 21.3% ($n = 20$) in five courses completed the study. The courses were all delivered during the Spring 2017 semester and covered a range of topics, including merchandising, global retailing, workforce supervision, social aspects of clothing, and fashion marketing. Participants were 95% female and ranged from 19 to 23 years of age ($M = 21.2$, $SD = 1.23$) (Table 3). All participants reported full-time enrollment in a fashion-related major.

Table 3

Participant Demographic Distribution by Treatment and Total Sample

Group	Age		Gender		Academic Standing			
	Mean	SD	Female	Male	F	So	J	Se
No Personalization	21.4	1.35	9	1	0	1	3	6
Context Personalization	20.9	1.10	10	0	0	3	5	2
Total	21.2	1.23	19	1	0	4	8	8

Note. F = Freshman; So = Sophomore; J = Junior; Se = Senior.

During the pre-study survey (Appendix C), 30% of participants assessed their familiarity with fair use as moderate or higher. Of the remaining 70% who reported their fair use familiarity at “somewhat familiar” or lower, 20% reported no prior knowledge of fair use. The self-assessment scores are consistent with the four-question pre-test scores, on which participants averaged 3.2 of 8 points ($M = 3.2$, $SD = 1.44$).

Recruitment

Participation was recruited from 10 fashion-merchandising courses that were taught by six faculty members at the institution. After a series of invitations and requests, three faculty members agreed to allow their students to participate and provided their rosters for recruitment from a total of six classes. Of the faculty members who did not agree to allow recruitment in their classes, two did not respond to the call and one expressed deep concerns with the overall academic performance and demeanor of the students the faculty member observed in their courses. These concerns will be explored in Chapter 5.

Participants were recruited via email and a series of in-class visits held during the middle of the spring 2017 semester. To encourage participation, extra credit was awarded to those students who completed the study as outlined in the procedures section to follow. Though participation numbers remained low after a series of calls and reminders, the researcher moved forward with data collection and analysis at the end of the semester to keep all activities within the same academic year and to ensure an intact, consistent group from which to draw observations.

Protection of Participants

All participant data and records were maintained in a password-protected location to ensure confidentiality during recruiting and data collection. During data analysis, participant

information was de-identified by randomly assigning each individual a participant code. The statistical software SPSS was used to analyze data, and no identifiable participant information was entered in the program. SPSS data were then encrypted and stored on a secure, password-protected computer. Participants were notified of the research, required to provide informed consent, and given the opportunity to opt out of the study at any time.

Research Design

This study employed a true experimental design comparing context-personalized and non-personalized instructional treatments. Participants assigned to the personalized group received content written using fashion merchandising as the context theme, while participants in the non-personalized group received generalized content that used generic, education-based examples. Performance on recall- and transfer-based posttest items served as a dependent variable. Transfer posttest items integrated both personalized and general problems to allow for both a between-subjects and within-subjects comparison of performance on test items. Motivation also functioned as a dependent variable as measured by the Instructional Materials Motivation Survey (Keller, 2010). The following sections detail the treatments, instructional materials, and instruments in more detail.

Treatments

Participants were randomly assigned to one of two treatment groups. Members of the context personalization group ($n = 10$) received an asynchronous online lesson on fair use and copyright that was written using fashion merchandising as a recurring theme throughout the material, including integrated examples, decorative images, and scenarios. A total of nine distinct instances of context personalization related to fashion merchandising were situated within the instructional unit. Each major section of the instructional unit contained at least one

example or reference to a fashion-merchandising topic to frame content within that domain.

Participants in the non-personalized group ($n = 10$) received the same information on the same fair use principles, but this group received general education-related examples relevant to all students in a higher education setting, rather than applications directly related to fashion merchandising (Table 4).

Table 4

Example Passage for Context Personalization and No Personalization Groups

	Context Personalization	No Personalization
Content on the Purpose of Use of Copyrighted Work	Fair use is more likely to be found when the copyrighted work serves as a criticism, such as quotes incorporated into your sales pitch, or perhaps runway images mixed into a multimedia product or blog to serve as commentary on the original.	Fair use is more likely to be found when the copyrighted work serves as a criticism, such as quotes incorporated into your paper, or perhaps pieces of a work mixed into a multimedia product or report to serve as commentary on the original.

Instructional Materials

The instructional units for this study were delivered in a Web-based format stored within the learning management system Blackboard Learn. Participants already used Blackboard Learn for coursework, so they were familiar with navigating the system and using it to access learning materials and assessments. The instructional materials were delivered as a self-paced learning module created using the authoring software Adobe Captivate, which allowed for a combination of images, text, and participant navigation tools. The content within the unit consisted of text

and images covering four fair use-related principles, as well as examples and practice problems for each principle.

Content for the instructional unit was adapted from a fair use unit created by Crews (2009), which used a Creative Commons Attribution License. The non-personalized unit contained general examples related to fair use in everyday life and educational settings (Appendix D). The material was adapted for the context personalization group by changing the instances of general examples to nine integrated fashion merchandising-specific examples (Appendix E). The units had a Flesch-Kincaid Grade Level reading score of 12.3 and were approximately 1,500 words long, though length varied slightly based on examples provided for each treatment group.

A unit of instruction focused on fair use and copyright was chosen because, as libraries in higher education expand their roles in creating and offering a formal curriculum with information literacy instruction (Torras & Saetre, 2016), course creators are increasingly likely to integrate these stand-alone instructional modules into their courses. Additionally, faculty members in this fashion merchandising program indicated that students had not yet received formal instruction on fair use as part of their regular coursework, which increased the ecological validity of adopting this instructional unit and contextualizing the materials.

In addition to the text-based examples, five non-instructional decorative images were used for aesthetic value to enhance contextualization throughout the presentations (Cordova & Lepper, 1996). The no personalization group received generic education-based images (such as computers, books, and students), while the fashion merchandising context personalization group received fashion-specific images (such as models on a runway, storefronts, and clothing). All

images were openly available using a Creative Commons Zero License from the stock photography service Pexels (<https://www.pexels.com>).

Instruments

Pretest and Survey

The researcher created a four-item, Likert-scale, criterion-referenced pretest to measure participants' levels of prior knowledge regarding fair use and the principles introduced in the instructional material (Appendix C). Questions underwent expert review to ensure content validity, differed from posttest items, and were delivered before the initial demographic and biographical surveys to reduce the effects of conceptual priming.

Each pretest question Likert scale ranged from 1-“very unlikely to be fair use” to 5-“very likely to be fair use.” The scenario in each question clearly fell within fair use or not. Questions were scored based on participant accuracy along the scale. Choosing the correct end of the scale (either “1” or “5”, depending on the scenario) resulted in earning two points; a correct directional choice not located at the end of the scale (a selection of either “2” or “4”) was worth one point; choosing “3” or an option at the wrong end of the scale earns zero points. The resulting possible pretest score ranged from 0 to 8 points. Reliability estimates measured by Cronbach's alpha were relatively low for this scale ($\alpha = .28$), which may reflect the limited number of questions. The Spearman-Brown prophecy formula produced a reliability of .74, which suggests that this scale may approach robust reliability with the addition of more items. The pretest items were not used as a covariate during data analysis and served simply to inform the learner profile to establish rates of prior knowledge and consistency across treatment groups. Lengthening the pretest was undesirable due to the risks of conceptual priming and test fatigue. The study information sheet and a single 5-point Likert scale item that asked learners' level of prior

knowledge related to fair use both preceded the pretest items. The pretest items were then followed by a series of nine biographical and demographic survey items (see Appendix C).

Instructional Materials Motivation Survey

The Instructional Materials Motivation Survey (IMMS) measures learner reactions to specific self-directed instructional units along the four dimensions of Keller's ARCS model (attention, relevance, confidence, and satisfaction) (Keller, 2010). Reliability estimates were deemed appropriate based on Keller's (2010) reported Cronbach's alpha measures (overall scale $\alpha = .96$) and were repeated to ensure reliability within this study application ($\alpha = .95$). This 36-item survey included 12 items for attention ($\alpha = .87$), nine items for relevance ($\alpha = .79$) and confidence ($\alpha = .70$), and six items for satisfaction ($\alpha = .86$). Items on this survey were based on a 5-point Likert-type scale ranging from 1= "not true" to 5= "very true", and possible scores for the survey ranged from 36 points to 180 points. As a copyrighted work, the full instrument was not included in this write-up. However, the survey-scoring guide was included in the appendices along with Keller's written permission to use the IMMS survey instrument for this research (Appendix F). Participants in both the personalized and non-personalized groups received the IMMS in Blackboard Learn immediately after completing the instructional unit and before taking the posttest.

Criterion-Referenced Posttest

The researcher developed a 15-question, multiple-choice, criterion-referenced posttest to measure recall and transfer, as outlined in the table of specifications (Appendix G). This test included five recall questions written in generic form, five transfer questions written using common, education-based contexts, and five transfer questions using a personalized fashion-merchandising context. Learners in both groups received a mix of general and personalized

items to inform the second research question concerning the impacts of personalization during testing (Ross, 1983). Each posttest item contained one correct answer worth 1 point, resulting in a posttest score range of 0 to 15 points.

Questions underwent expert review and were piloted in the fall 2016 semester with a group of 10 fashion merchandising students from a similar student population to improve item validity and reliability. Based on question performance in the present study, one question from each question category (recall, transfer-general, and transfer-context) was removed, resulting in a 12-question posttest instrument with a Kuder-Richardson (KR-20) reliability coefficient of .66. Though this score represented a moderate level of reliability, it approached the desired reliability threshold of .70 (Nunnally, 1994); therefore, analysis of recall and transfer using this instrument continued.

Procedure

Participants were recruited using in-class visits and an invitation letter distributed via email to students in six fashion-merchandising courses (Appendix B). Using instructions outlined in the invitation message, students self-enrolled in a Blackboard Learn course designed to house all instruments and instructional materials. Upon completing a digitized informed consent form provided within the course space, participants were automatically randomly assigned to one of the two treatment groups: context personalization or no personalization. Treatment groups were anonymous, so participants were unable to see other members within the course space. All participants completed the same content pre-test and demographic survey. Learners were able to complete this online, asynchronous unit at their own convenience within a designated two-week timeframe.

Participation in this study was voluntary for all members of the courses, and learners received extra credit based on successful completion of participation. A ruse was employed to encourage heightened performance by informing participants that they would need to score a 70% or higher on the posttest to earn extra credit; however, all participants who completed the study materials received extra credit. Alternative opportunities for extra credit were provided for those students in the courses who do not wish to participate in the study.

Once participants completed the pre-instructional instruments, they were able to access and review their assigned instructional unit on fair use and copyright. Advanced adaptive release features available within Blackboard Learn were used to require that students progress through the pretest, instructional unit, and posttest items in order. These adaptive release features also allowed the researcher to specify which instructional units each group should receive. Once individuals were assigned to a treatment group within Blackboard Learn, they could only see the materials designated as required for their group.

The instructional unit was followed immediately by the IMMS survey, and the unit concluded with the delivery of the posttest. The average time that participants spent in the course space was 39 minutes ($SD = 0.40$). While all identifiable student information was removed for analysis, participant names were shared with the respective faculty member(s) responsible for tracking participation in the study so that students received appropriate course credit for completion.

Data Analysis

The data for each research question were analyzed using a series of ANOVA tests as outlined in the data analysis plan presented in Table 5.

Table 5

Summary of Data Analysis Plan

RQ	Description	Independent Variable(s)	Statistical Analysis	Dependent Variable
1	Does context personalization of learning materials influence learner performance on criterion-referenced content knowledge tests?	Group Type (No Personalization, Context Personalization)	One-Way ANOVA	Fair Use Knowledge (Posttest Performance, Total Score 0-12)
2	Does context personalization of test items influence learner performance on criterion-referenced content knowledge tests?	Group Type (No Personalization, Context Personalization) Question Type (Transfer: General, Personalized)	Two-Way Mixed ANOVA	Fair Use Knowledge (Posttest Performance, Total Score 0-12)
3	Does context personalization influence learners' motivation toward instruction?	Group Type (No Personalization, Context Personalization)	One-Way ANOVA	Learner Motivation (IMMS, Mean Score 0-5)

CHAPTER 4

RESULTS

This section provides a detailed overview of the findings for each of the three research questions posed in this study. Findings for the first two research questions are based on the criterion-referenced posttest results, which could range in score from 0 to 12. The third research question addresses learner motivation as measured by the Instructional Materials Motivation Survey, with possible scores ranging from 36 to 180. All analyses were conducted using the statistical software SPSS.

Research Question 1

The first research question asked the extent to which group-based context personalization of learning materials influence learner performance on the criterion-referenced content knowledge posttest. The overall mean of all participants ($n = 20$) on the posttest was 7.85 ($SD = 2.16$) of 12 possible points, with the no personalization group ($n = 10$) averaging a mean score of 7.90 ($SD = 2.02$) and the context personalization group ($n = 10$) with a mean score of 7.80 ($SD = 2.39$) (Table 6). Skewness and kurtosis fell within the range of ± 2 , and the Shapiro-Wilk test (Table 7) shows that the no personalization group and context personalization group are both significantly normally distributed ($p > .05$) for the 12 total test items, as well as the eight transfer-related test items. The distribution on the four recall items overall and for the personalization group was non-normal ($p < .05$). However, because group sizes are equal and the rest of the categories demonstrated normal distribution, and because ANOVA is a robust test that can often function correctly despite non-normality (Field, 2009), analysis proceeded without transforming the data. The assumption of homogeneity of variances was met, as assessed by Levine's test for equality of variances ($p = .796$).

Table 6

Descriptive Statistics for Posttest Performance

Group	<i>n</i>	<i>M</i>	<i>SD</i>	Skewness (SE)	Kurtosis (SE)
Posttest					
No Personalization	10	7.90	2.02	0.17 (0.69)	-1.34 (1.33)
Context Personalization	10	7.80	2.39	0.23 (0.69)	-0.37 (1.33)
Total	20	7.85	2.16	0.18 (0.51)	-0.79 (0.99)
Recall					
No Personalization	10	2.50	1.27	-0.81 (0.69)	.025 (1.33)
Context Personalization	10	2.80	1.14	-0.09 (0.68)	-1.66 (1.33)
Total	20	2.65	1.18	-0.51 (0.51)	-0.39 (0.99)
Transfer - Overall					
No Personalization	10	5.40	1.51	0.12 (0.69)	-0.37 (1.33)
Context Personalization	10	5.00	1.76	-0.15 (0.69)	-0.19 (1.33)
Total	20	5.20	0.93	-0.54 (0.51)	-0.28 (0.99)
Transfer – General Context					
No Personalization	10	2.90	0.99	-0.61 (0.69)	2.80 (1.33)
Context Personalization	10	2.80	0.92	-0.60 (0.69)	0.40 (1.33)
Total	20	2.85	0.93	-0.54 (0.51)	-0.28 (0.99)
Transfer – Personalized					
No Personalization	10	2.50	0.85	0.00 (0.69)	0.11 (1.33)
Context Personalization	10	2.20	1.14	-0.48 (0.69)	0.55 (1.33)
Total	20	2.35	0.99	-0.45 (0.51)	0.50 (0.99)

Table 7

Test for Normality of Posttest Data

Group	Shapiro-Wilk		
	Statistic	df	Sig.
Posttest			
No Personalization	0.944	10	0.596
Context Personalization	0.952	10	0.691
Total	0.956	20	0.465
Recall			
No Personalization	0.903	10	0.238
Context Personalization	0.825	10	0.029
Total	0.890	20	0.027
Transfer			
No Personalization	0.969	10	0.886
Context Personalization	0.945	10	0.608
Total	0.946	20	0.314

After ensuring that all necessary assumptions were met, a one-way analysis of variance was conducted to analyze the differences in overall posttest performance, as well as performance on transfer and recall test items, between the no personalization and context personalization groups. No statistically significant differences were found between the groups on overall posttest performance, $F(1, 18) = .010, p = .921$, recall of fair use concepts, $F(1, 18) = .310, p = .584$, or transfer-related questions, $F(1, 18) = .800, p = .592$.

Research Question 2

While the first research question explored the relationship between the type of materials received and posttest performance, the second research question studied the transfer posttest items themselves to explore the extent to which group-based context personalization of test items influenced learner performance on the criterion-referenced content knowledge posttest. A two-way mixed analysis of variance was conducted to evaluate potential differences both between

and within groups' performance on general education transfer items ($n = 4$) versus fashion merchandising context-specific transfer items ($n = 4$). Results demonstrated both homogeneity of variances as measured by Levine's test for equality of variances ($p > .05$) and homogeneity of covariances as assessed by Box's test of equality of covariance matrices ($p = .844$).

No statistically significant interaction was identified between the treatment group and type of transfer question, $F(1, 18) = 0.173, p = 0.682$, partial $\eta^2 = 0.010$. Likewise, no significant differences were identified between the no personalization and context personalization groups on general context transfer questions, $F(1, 18) = 0.050, p = 0.818$, or on fashion merchandising context-specific transfer questions, $F(1, 18) = 0.450, p = 0.512$. However, the within-subjects main effect of transfer question type did approach statistical significance, $F(1, 18) = 4.327, p = 0.052$, partial $\eta^2 = 0.194$, suggesting that participants scored better on the general context questions ($M = 2.85, SD = 0.93$) than on personalized context questions ($M = 2.35, SD = 0.99$) (Figure 1).

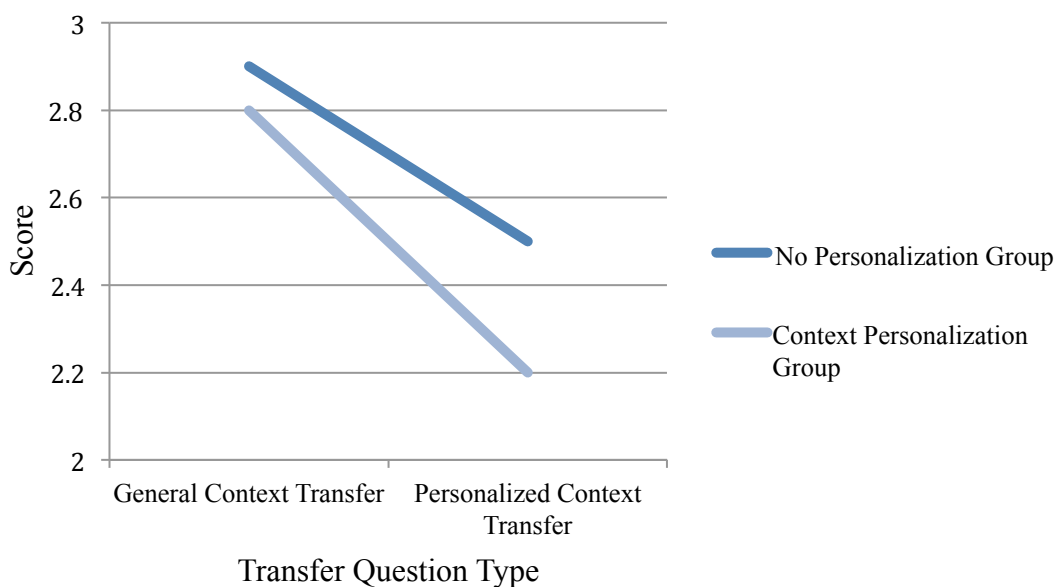


Figure 1. Estimated marginal means of transfer question performance.

Research Question 3

The third research question investigated how group-based context personalization affected learners' motivation toward the instruction as measured by the 36-item IMMS survey administered immediately after the instructional unit. Each IMMS question was rated on a 5-point Likert scale, which resulted in a possible overall score ranging from 36 to 180 points. Due to the uneven number of items in each of the subscales, average scores were divided by the number of items within each subscale to produce a score from 1 to 5, which allowed for comparison between groups overall and across subscales (Keller, 2010). Because the IMMS scale measures situation-specific motivation levels, no established norms categorize scores as high or low. Rather, scores serve as a point of comparison between the participant groups who completed the instructional unit. Table 8 outlines the descriptive statistics, by group type, for learner motivation overall and for each of the four subscales: attention, relevance, confidence, and satisfaction.

A one-way analysis of variance was conducted to determine if significant differences existed between group motivation scores. IMMS total scores for each group and scores within each subscale were normally distributed as assessed by Shapiro-Wilk's test ($p > 0.05$), and the assumption of homogeneity of variances was met as assessed by Levine's test for equality of variances ($p = 0.09$). No significant differences were found between the groups' overall IMMS scores, $F(1, 18) = 0.036, p = 0.852$, nor on the subscales of attention, $F(1, 18) = 0.001, p = 0.981$, relevance, $F(1, 18) = 0.325, p = 0.576$, confidence, $F(1, 18) = 0.474, p = 0.500$, or satisfaction, $F = 0.678, p = 0.421$. Though score averages did illustrate a trend of higher ratings in all but one subscale (confidence) by the no personalization group (Figure 2), those differences were not statistically significant.

Table 8

Descriptive Statistics for Learner Motivation by Group Type

Group	<i>n</i>	<i>M</i>	<i>SD</i>	Skewness (SE)	Kurtosis (SE)
IMMS					
No Personalization	10	3.23	0.75	-0.29 (0.69)	-1.88 (1.33)
Context Personalization	10	3.18	0.55	-0.27 (0.69)	-1.88 (1.33)
Total	20	3.21	0.64	-0.22 (0.51)	-1.45 (0.99)
Attention					
No Personalization	10	3.17	0.89	-0.31 (0.69)	-1.48 (1.33)
Context Personalization	10	3.16	0.63	-0.43 (0.69)	-1.24 (1.33)
Total	20	3.16	0.75	-0.32 (0.51)	-1.17 (0.99)
Relevance					
No Personalization	10	3.38	0.74	-0.26 (0.69)	-0.85 (1.33)
Context Personalization	10	3.21	0.55	-0.61 (0.69)	-0.11 (1.33)
Total	20	3.29	0.64	-0.21 (0.51)	-0.58 (0.99)
Confidence					
No Personalization	10	3.46	0.60	-0.52 (0.69)	-1.26 (1.33)
Context Personalization	10	3.62	0.47	-0.24 (0.69)	-0.65 (1.33)
Total	20	3.54	0.53	-0.37 (0.51)	-0.64 (0.99)
Satisfaction					
No Personalization	10	2.82	0.94	0.13 (0.69)	-1.62 (1.33)
Context Personalization	10	2.50	0.77	-0.38 (0.69)	1.10 (1.33)
Total	20	2.66	0.85	0.09 (0.51)	-0.56 (0.99)

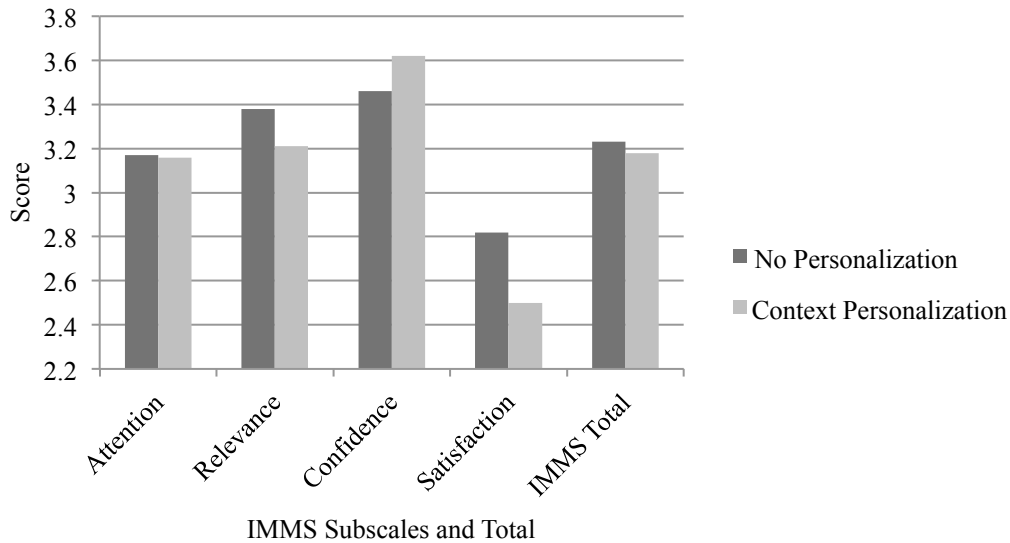


Figure 2. IMMS score comparison by group.

Summary of Results

Posttest scores between the no personalization group and the context personalization group were not significantly different overall or for recall or transfer question types. However, when comparing transfer performance within groups based on the type of transfer question, participants approached significantly better performance on the general, education-based context transfer questions than on the personalized transfer questions that were contextualized using fashion merchandising-related scenarios. These findings suggest that these participants may more soundly identify with the education-centric scenarios, rather than the professional examples for a field to which learners are just becoming members.

Participant motivation levels, as measured by the IMMS instrument, showed no significant differences between groups overall or within the individual constructs of attention, relevance, confidence, or satisfaction. Participants in the no personalization group tended to score higher on average in all categories except for confidence. Confidence emerged as the

highest-rated category of motivation for both groups, while satisfaction with the instruction stood as the lowest category score for both groups. These results are explored in greater detail in the Discussion section of Chapter 5.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

With the growing popularity of online courses at U.S. higher education institutions (Allen & Seaman, 2017), practitioners and researchers play a critical role in continuing to identify and validate effective online instructional strategies. Existing literature on group-based context personalization indicates that it may be an effective strategy to promote academic achievement and improved affective responses to instruction (Akinsola & Awofala, 2009; Anand & Ross, 1987; Heilman et al., 2010; Walkington & Hayata, 2017). However, prior research has yielded mixed results, and the body of research surrounding this strategy's use in higher education and in domains outside of mathematics remains limited.

The present study sought to explore the effects of group-based context personalization on the learning outcomes and motivation levels of participants in a shared academic major. Namely, undergraduate fashion merchandising majors completed an online, text-based instructional unit on fair use and copyright. The goals of the study were twofold: first, to evaluate if and the extent to which group-based context personalization influenced performance on recall and transfer test items delivered using both general and contextualized questions; and second, to determine if the use of context personalization resulted in a significantly different level of participant motivation towards the instructional materials. The following chapter discusses the research findings in detail, including limitations and implications for future research and practice.

Discussion

According to Bruner (1990), the narrative within which we frame instruction is inseparable from the content itself, and we must consider both holistically as we create materials.

As an instructional strategy, group-based context personalization acknowledges that relationship between narrative and content to create meaningful, authentic, and relevant learning experiences framed within learners' areas of interest (Akinsola & Awofala, 2009; Walkington & Bernacki, 2014). However, this strategy of grounding instructional materials within learners' interest areas has generated varied results regarding improving participants' learning outcomes and affective responses to the instruction (Høgheim & Reber, 2015; Ku & Sullivan, 2000; Walkington & Hayata, 2017). In the present study, the use of group-based context personalization did not yield significant improvements in recall or transfer of novel information, or in participants' motivation towards the instruction. The next two sections discuss these focus areas in greater detail.

Learning Outcomes

Situated cognition theorizes that learning integrates both individual and social spheres (Wilson & Myers, 2000), and therefore, learning should occur within authentic contexts and environments (Awofala, 2014; Brown et al., 1989). The premise behind framing content within students' academic major is to address the tenets of situated cognition by presenting content in ways applicable to students' chosen career paths. The present study endeavored to explore the influences of group-based context personalization on learning outcomes by utilizing the strategy in two ways. First, this study used between-groups experimental testing with a treatment group receiving fashion merchandising-contextualized examples within the instructional materials. Second, in addition to recall questions, the posttest integrated both generic, education-related transfer items and contextualized, fashion merchandising-related transfer items that were delivered to both the personalized and non-personalized groups for both within- and between-groups analyses (Anand & Ross, 1987; Ku & Sullivan, 2000).

Contrary to many prior personalization studies that found significant improvements in learning outcomes for participants who completed a personalized instructional unit (Anand & Ross, 1987; Areelu & Akinsola, 2014; Awofala, 2014; Cordova & Lepper, 1996; Ross, 1983; Ross et al., 1985; Walkington & Sherman, 2013), the present study did not yield differences between the personalized and non-personalized treatment groups in recall or transfer question performance. Transfer performance also did not differ between groups on either general context questions or fashion merchandising-specific questions. These results are supported by research from Cakir and Simsek (2010) and Høgheim and Reber (2015), who also found no significant performance improvement from the implementation of a personalized instructional unit.

These findings illustrate that, for this instructional unit, exposure to the fashion merchandising-related lesson materials did not increase participants' ability to apply their newly acquired knowledge in novel contexts. One potential explanation for this consistency in performance between groups may be the duality of all participants identifying as both students and aspiring fashion merchandisers, as examples in the instructional unit may have appealed to both roles. Similarly, as other researchers have postulated (Ross, 1983; Ross et al., 1986), since most participants were further along in their studies and were all enrolled in fashion merchandising-related courses, they may have found fashion merchandising-related examples to be as familiar and expected as the education-related examples.

Though between groups transfer scores did not differ, the within groups scores on general education context transfer questions approached significantly better performance for both groups than scores on those transfer questions grounded within fashion merchandising applications. This pattern is supported by Ku and Sullivan (2000), who also found within-groups differences on posttest performance, though their participants performed significantly better on personalized

problems. However, as Ross et al. (1986) noted, students may perform best when using “familiar and personally relevant applications” (p. 251). For this group of participants, better performance on the general education-related transfer questions suggests that the education-related examples may have potentially resonated more with their established prior knowledge base and affiliation to the “student” affinity group than the fashion-related examples did to participants’ emerging membership within the “fashion merchandising” affinity group (Gee, 2007). Another potential explanation for the performance discrepancy could be that one or more of the posttest items violated Mayer’s (2009) coherence principle due to the addition of extraneous details to frame the context of the fashion examples. This issue will be explored further in the Limitations section.

Motivation

For online course materials to address the holistic needs of the learner, course creators must consider instructional strategies that not only increase learning outcomes, but also stimulate positive affective responses to the instruction. By framing content within areas of interest for the learner, group-based context personalization endeavors to elicit enhanced affective responses to instruction, including increased attention, concentration, participation, and motivation (Hidi, 2006; Mincu, 2012). The present study strove to address motivation by designing online instructional units using the motivational design principles outlined by Keller (2010), and by providing the treatment group with instruction crafted within the context of the participants’ shared academic major.

Prior research on personalization integrated within instructional materials has generated improved learner affective responses towards instruction (Akinsola & Awofala, 2009; Anand & Ross, 1987; Ku & Sullivan, 2000), including increased interest (Heilman et al., 2010; Renninger

et al., 2002), perceived value (Høgheim & Reber, 2015), and motivation towards the instruction (Awofala, 2014; Cordova & Lepper, 1996; Vukmirovic, 2013). The present study used Keller's (2010) Instructional Materials Motivation Survey (IMMS) to measure participants' motivational responses to the instructional unit along the four domains of the ARCS model: attention, relevance, confidence, and satisfaction. In contrast to the prior research outlined above, the present study did not yield significant differences between the personalized and non-personalized treatment groups on motivation towards the instruction, whether considered overall or along any of the four individual dimensions of motivation.

The characteristics of the learner population must be considered when interpreting findings from group-based context personalization based on academic major (Ross, 1983). One potential explanation for the consistency in motivation scores may be that, because the participants in this study were undergraduate students, the generalized references to education may have seemed equally or more relevant than references to professional practice, especially since these participants were still working their way into the associated affinity group (Gee, 2007) for fashion merchandising. This interpretation is further supported by the within-groups performance on general education transfer items. Since both instructional units were created using Keller's (2010) well-established motivational design principles, both units seem to have carried equivalent motivational appeal for participants.

Many existing studies on group-based context personalization used non-academic, well-developed interest areas or shared biographical information (Akinsola & Awofala, 2009; Ku & Sullivan, 2000; Renninger et al., 2002; Walkington & Sherman, 2013). Though prior knowledge about fair use was accounted for and both units underwent expert review, a clear understanding of participants' prior knowledge and future goals within the domain of fashion merchandising

may have helped to create more targeted, nuanced examples to meet the affective needs of this particular group of learners at their current stage of academic and professional development.

Limitations

Sample Composition

The participation rate from the chosen sample of students was much lower than anticipated. After numerous recruitment emails, in-class faculty recruitment visits, and the incentive of extra credit for study completion, resources within this program were deemed exhausted and data analysis proceeded to ensure that data collection used an intact group of students and remained within the same academic year. Faculty members within the program expressed anecdotal concerns that this group of students tended to struggle academically, which may have contributed to either disinterest in or lack of time or resources to complete this study as supplemental work. Of the participants who did complete the study, these characteristics may have manifested in their lower-than-anticipated average time of 39 minutes within the instructional unit and low overall average scores on the posttest of 65.41% despite the ruse calling for a minimum performance of 70% to earn the extra course credit.

An additional limitation of this study as it relates to participants is that, though the instructional unit was constructed as an online lesson, these students were not online learners. Participants all had experience with using the Blackboard Learn learning management system for prior coursework, but the extent of their online learning experience remains unknown. Because this study utilized a small sample in a specialized major, the findings may not be generalizable to other programs or institutions.

Instructional Materials

The instructional materials that were customized with fashion merchandising examples used a wide variety of scenarios and images from the industry in an attempt to address diverse interests that aspiring fashion merchandisers may hold. However, the chosen examples may or may not have resonated with the prior knowledge and future goals of this sample of students. Though it may limit the generalizability of the materials to similar programs or institutions, creating a more customized instructional unit based on learner input may have improved the motivational response to materials. For example, collecting qualitative data through student interviews and surveys beforehand (e.g. Walkington & Sherman, 2013) would have enabled the creation of a highly targeted instructional unit customized to the articulated group-based interests of this sample, rather than generalized group-based interests and contexts from the field of fashion merchandising more globally.

Though the instructional materials chosen for this study held high ecological validity in terms of the practice of a course creator adopting a standalone instructional unit from a library to teach information literacy skills, this validity could have been improved by integrating this unit as part of the regular required coursework within this program. Similarly, the measured amounts of personalization chosen for this unit were designed purposefully to help to identify targeted outcomes of group-based context personalization in an isolated, controlled environment. However, these outcomes may change when implemented in longer treatments or over extended periods of time.

Instruments

One limitation of this study's instruments lies in the moderate KR-20 reliability coefficient of the criterion-referenced posttest. Potential factors that could have influenced this

score are the low number of test items and the heterogeneity of the recall and transfer items. Additionally, since the transfer-related questions included supplemental details within which to frame scenarios, these questions may have contained extraneous information that interrupted, rather than facilitated, meaning making (Mayer, 2009). Participants may also have experienced testing fatigue after completing the 14-item pretest and instructional survey, instructional materials, 36-item IMMS survey, and 12-item posttest.

Implications

The present study sought to expand the body of research surrounding group-based context personalization by applying this instructional strategy to a fair use and copyright unit contextualized within the participants' shared academic major. Though this study yielded no significant differences in learning outcomes or motivation towards the instruction, the findings highlight opportunities for future research, as well as implications and considerations for future practice.

Research

One of the most significant implications for future research that can be drawn from the present study lies in the within-groups differences in performance on transfer posttest questions. All participants, regardless of whether they received the general education-based instructional unit or the personalized fashion merchandising-related unit, tended to perform better on education-related transfer test items than on fashion merchandising-related transfer items. Though we know that prior knowledge and familiar contexts serve as important frameworks to build upon when learning and applying new information (Anderson, 1984; Davis-Dorsey et al., 1991; Mayer, 1975), very few existing group-based context personalization studies conduct a holistic analysis of prior knowledge when crafting instructional materials (e.g., Walkington &

Sherman, 2013). In addition to considering a learner's prior knowledge within the content domain, future personalization research using academic majors should carefully consider participants' prior knowledge in the domain within which materials are contextualized. Using more qualitative measures both before crafting and after delivering an instructional unit, researchers may gain more nuanced and detailed insights about learners' relationships to their intended affinity groups and to content created using group-based context personalization. These insights could in turn inform our understanding of if and how to expand the instructional strategy into a more diverse arena of content domains.

The present study drew findings from a highly homogenous group of participants during a single instructional activity. Future research should explore the longitudinal relationship between group-based context personalization, performance, and motivation both during extended exposure to the strategy and after instruction has ended. Likewise, future research must also consider the effectiveness of this strategy for learners of varying academic standing and major. Though it is difficult to generalize the present findings due to the limitations outlined in the previous section and their divergence from a large body of existing research, this study speaks to the need for continued exploration of group-based context personalization in a variety of applications.

Practice

From a highly practical standpoint, the present study has demonstrated that adaptive release functionality available within many modern learning management systems (e.g., Blackboard Learn, Canvas, Brightspace, etc.) may mitigate the cost and time investments identified by prior researchers as potential barriers to creating group-based context personalization (Awofala, 2014; Walkington & Sherman, 2013). By assigning learners to groups

within the learning management system, course creators can easily designate which sets of instructional materials students should receive, allowing for streamlined differentiation between groups.

The within-groups tendency to perform better on education-related examples, coupled with the lack of significant differences between groups on motivation measures, raise important considerations about the relationship between academia and professional studies. Since undergraduate students still soundly belong to their “student” affinity group, practitioners must continue to explore ways to increase relevance to professional practice and facilitate the enculturation into learners’ desired fields of study. These factors will likely vary by program and institution, so practitioners seeking to employ group-based context personalization strategies should evaluate and accommodate distinctive characteristics of the learners, culture, and environment when crafting materials.

Conclusions

As online learning continues to grow in popularity and our instructional technologies improve to readily allow for adaptive types of interventions, we must further our understanding of how learners respond to personalized instructional strategies in a variety of contexts. Existing research largely supports the use of group-based context personalization to facilitate learning and improve affective responses to instructional materials (Cordova & Lepper, 1996; Heilman et al., 2010; Walkington & Bernacki, 2014). However, many prior studies focused on math-based and problem-solving learning activities (Ross, 1983; Ross et al., 1986) and students in K-12 environments (Awofala, 2014; Davis-Dorsey et al., 1991; Ku & Sullivan, 2000).

This research endeavored to extend our understanding of group-based context personalization by employing the strategy within previously unstudied content and context

domains: fair use and fashion merchandising. Though the present study did not yield significant differences in participant learning outcomes or motivation towards the instructional materials, it has illustrated important considerations that must be addressed when implementing group-based context personalization in new learning environments.

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Appendix A

Permissions to Reprint

Record of Permission to Reprint Summary of Personalization Strategies

9/25/17, 9:20 PM

Dear Jessica,

Thank you for your email.

In regards to your request Emerald is happy for you to use this content within your thesis subject to full referencing. Please note however that in the future if you wish to publish your thesis commercially you will need to clear permission again.

I hope the above has answered your query but should you require any further assistance, please do not hesitate to contact me.

Regards

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P Please consider the environment before printing this email

From: Jessica Resig [mailto:jjr27@psu.edu]
Sent: 21 September 2017 20:23
To: Permissions <Permissions@emeraldinsight.com>
Subject: Request for Reproduction of Table from Walkington & Bernacki, 2014

Hello,
My name is Jessica Resig, and I am a doctoral student in the Instructional Design and Technology program at Old Dominion University. I am currently working on my dissertation, which explores the use of personalization strategies in text-based, self-paced online learning modules. In addition to evaluating learner performance, I am interested in exploring learner interest and personalization using the categories outlined by Walkington and Bernacki in the article cited below.

Walkington, C., & Bernacki, M. (2014). Motivating students by personalizing learning around individual interests: A consideration of theory, design, and implementation issues. *Motivational Interventions*, 139 - 176.

Would it be possible to get your permission to reproduce the Summary of Approaches to Context Personalization table (Table 1, p. 161) in my research study? I will include the copyright information for the table, and I will use the information only for my research and will not use it with any compensated activities. I will be glad to send a copy of my completed research to your attention upon completion of the study if necessary. Please let me know if you would like any additional details, and thank you for your consideration.

Regards,

Jessica Resig
Director, Center for eLearning Initiatives
Penn State Behrend
20 Erie Hall
Erie, PA 16563

Phone: (814)898-6947

Record of Permission to Print ARCS Categories and IMMS Scoring Guide

 From: jkellersan
To: JESSICA J RESIG

Dear Jessica,
Thank you for your interest in my work. You may publish the data that you describe in this email.

Best wishes for a successful outcome to your dissertation!

Sincerely,
John

John M. Keller, Ph.D.
Professor Emeritus
Educational Psychology and Learning Systems
Florida State University

9705 Waters Meet Drive
Tallahassee, FL 32312-3746
Phone: 850-294-3908

Official ARCS Model Website: <http://arcsmodel.com>.

Keller, J.M. (2010), *Motivational Design for Learning and Performance: The ARCS Model Approach*. New York: Springer. Now available in English, Japanese, and Korean.

"Good judgment comes from experience, and a lot of that comes from bad judgment."

From "Don't Squat with Your Spurs On:
A Cowboy's Book of Wisdom."

Appendix B

Participant Recruitment Email

Dear Student,

My name is Jessica Resig, and I am a doctoral student in the Old Dominion Instructional Design and Technology program under the supervision of Dr. Ginger Watson, Associate Professor, Instructional Design & Technology, in Darden College of Education. You are invited to participate in a research study aimed at exploring the use of personalized language in online course content and its effects on your learning outcomes.

If you decide to participate, you will begin by visiting a Blackboard Learn organization titled “IDT Watson Resig.” To view the organization, log in to Blackboard and click on “My Professional Learning” at the top, then locate the space called “IDT Watson Resig” under the header “My Organizations.” You may also use the search feature to find the organization.

Once enrolled, you will complete a brief, five-minute survey that asks for demographic information and will collect your name, course information, and UIN. This information will be used to notify your instructor that you have participated in the study. You will also be asked a series of questions about your understanding of copyright and fair use. Once the survey is complete, you will see an instructional unit appear. Please read the material carefully, and then complete the attitude survey and posttest.

There are no identified risks in participating in this pilot study. Participation in this research is completely voluntary and you may choose to withdraw your consent at any time without consequence. The information you provide will be kept confidential and stored in a password-protected electronic format. While responses will be aggregated to protect your identity, your participation in the study will be reported to your instructor so that, upon successful completion of the instructional unit, you will be awarded extra credit points in the course.

If you have any questions about the study, please feel free to contact me at jresi001@odu.edu or at (814)203-1662. You may also contact my faculty advisor, Dr. Ginger Watson, at gsatson@odu.edu or at (757)683-4305. This research has been approved by the Human Subjects Committee of the Darden College of Education. If you have any questions or concerns about the research protocols or treatment in this research, you may contact Human Subjects Chair for the Darden College of Education, Petros Katsioloudis, pkatsiol@odu.edu.

Thank you for your consideration. Your participation is greatly appreciated.

Thank you,

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Instructional Design & Technology
Email: jresi001@odu.edu
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Responsible Project Investigator
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Appendix C

Information Sheet, Demographic Survey and Prior Knowledge Assessment

The following items were delivered as a survey in Blackboard Learn. Agreement to the opening study description served as informed consent.

Dear Student,

Thank you for your interest in participating in this study, which seeks to explore the use of personalization in online course content and its effects on your learning outcomes.

This survey will take approximately 5 minutes to complete. This survey asks for your name, course information, and UIN, which will be used to inform your instructor that you participated in the study. You will also be asked a short series of questions about fair use and copyright. After completing the survey, an instructional unit will appear in the Blackboard content area. The instruction, posttest, and final attitude survey will take approximately 45 minutes and must be completed in one sitting. You will have until [date] to complete the instructional unit.

There are no identified risks in participating in this research study. Participation in this research is completely voluntary and you may choose to withdraw your consent at any time without consequence. The information you provide will be kept confidential and stored in a password-protected electronic format. While responses will be aggregated to protect your identity, your participation in the study will be reported to your instructor so that, upon successful completion of the instructional unit, you will be awarded credit for completion in your course.

If you have any questions about the study, please feel free to contact me at jresi001@odu.edu or at (814)203-1662. You may also contact my faculty advisor, Dr. Ginger Watson, at gswatson@odu.edu or at (757)683-4305. This research has been approved by the Human Subjects Committee of the Darden College of Education. If you have any questions or concerns about the research protocols or treatment in this research, you may contact Human Subjects Chair for the Darden College of Education, Ed Gomez, 757-683-6309, egomez@odu.edu.

Electronic Consent

By beginning the pretest, you indicate that you have read and understand the information provided above, that you willingly agree to participate, and that you may withdraw your consent at any time and discontinue without penalty. If you do not wish to participate in the study, you may exit the course at any time.

Pretest

1. The content in this study is related to fair use and copyright. On the scale below, please indicate your familiarity with fair use. (1 – Not familiar with fair use, 5 – Very familiar with fair use)

Fair Use Scenarios: The individuals in the scenarios below did not request copyright permission for the content they are using. Please consider each scenario carefully, and then

decide how likely it is that the use of content described would qualify as fair use. (1 – Highly unlikely to be fair use, 5 – Highly likely to be fair use)

2. Sam is giving a speech to the incoming freshman class, which is to be recorded and streamed live online. At the beginning of his presentation, he uses the theme song from a popular television show in the background for added effect.
3. Kate is a fashion blogger, and yesterday her favorite magazine posted an exciting news story. She quotes the news article in a new blog post.
4. Marquis uses pictures of famous modern paintings in an in-class presentation to teach about current art movements.
5. Juan recently visited Australia, so he decided to upload a brief video about the country from National Geographic to his online portfolio.

Biographical and Demographic Information

6. Name:
7. UIN:
8. Course Title:
9. Instructor Name:
10. Age:
11. What is your current academic standing? (Select one)
 - a. Freshman
 - b. Sophomore
 - c. Junior
 - d. Senior
 - e. Post-Baccalaureate
 - f. Non-degree
12. How many credit hours are you currently taking?
 - a. 0-5
 - b. 6-8
 - c. 9-11
 - d. 12+
13. What is your sex?
 - a. Male
 - b. Female
 - c. Transgender
14. Which of the following best represents your ethnicity? (Select all that apply)
 - a. American Indian or Alaskan Native
 - b. Asian
 - c. Black or African American
 - d. Native Hawaiian or Other Pacific Islander
 - e. Caucasian
 - f. Hispanic or Latino
 - g. Other, please specify _____

Appendix D

Control Group Instructional Materials: No Personalization



INTRODUCTION

Section 107 of the United States Copyright Act describes the concept of fair use, which allows you to copy copyrighted material without the owner's permission for "fair" uses, such as criticism, parody, comment, news reporting, or certain educational purposes. Whether or not your work is within the boundaries of fair use depends on the facts of the particular situation. What exactly are you using? How widely are your materials shared? Is your work confined to the nonprofit environment of your university?

This lesson will cover the four key factors of fair use to help you determine whether or not your work is covered under the fair use doctrine.

Guiding Questions

- What is fair use?
- How is fair use determined?
- What factors contribute to fair use?

DETERMINING FAIR USE

To determine whether your work is within the bounds of fair use, the law calls for a balanced application of these four factors:

1. the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
2. the amount and substantiality of the portion used in relation to the copyrighted work as a whole;
3. the nature of the copyrighted work; and
4. the effect of the use upon the potential market for or value of the copyrighted work.

Use the following acronym to help you represent the four factors: PANE (Purpose, Amount, Nature, Effect). These four factors come directly from the fair use provision, Section 107 of the U.S. Copyright Act, and they have been examined and developed in court rulings. The next few pages explain the significance of the factors as they relate to many university and student needs.

FACTOR 1: PURPOSE

PANE

The fair use statute indicates that nonprofit educational purposes are generally favored over commercial uses. In addition, the statute explicitly lists several purposes especially appropriate for fair use, such as criticism, comment, news reporting, teaching, scholarship, or research. These activities are also common and important at your university. But, not all nonprofit educational uses are "fair." A finding of fair use depends on your application of all four factors, not just the purpose. However, limiting your purpose to some of these activities is an important part of claiming fair use.

Courts also favor uses that are "transformative," or that are not merely reproductions. Fair use is more likely to be found when the copyrighted work is "transformed" into something new or of new utility, such as quotations incorporated into your paper, or perhaps pieces of a work mixed into your multimedia product for teaching or inclusion in commentary or criticism of the original.

FACTOR 2: AMOUNT USED

PANE

Although the law does not set exact quantity limits, generally the more content you use, the less likely you are within fair use. The "amount" used is usually evaluated relative to the length of the entire original and in light of the amount you need to serve a proper objective. However, sometimes the exact "original" is not always obvious. A book chapter might be a small portion of the book, but the same content published elsewhere as an article or essay could be considered the entire work in that context.

The "amount" of a work is also measured in qualitative terms. Courts have ruled that even uses of small amounts may be excessive if you take the "heart of the work." For example, a short clip from a movie may usually be acceptable, but not if it encompasses the most extraordinary or creative elements of the film. Similarly, it might be acceptable to quote a small portion of a magazine article, but not if what you quote is the journalistic "scoop." On the other hand, in some contexts, such as critical comment or parody, copying an entire work may be acceptable, depending on how much you need to achieve your purpose. Photographs and artwork often generate controversies because you usually need the full image, and this may not be a fair use. However, a court has ruled that a "thumbnail" or low-resolution version of an image is a lesser "amount." Such a version of an image might adequately serve your educational or research purposes.

FACTOR 3: NATURE OF WORK

PANE

This factor centers on the work you're using, and the law allows for a wider or narrower scope of fair use, depending on the characteristics or attributes of the work. For example, the unpublished "nature" of a work, such as private letters or a manuscript, can weigh against your finding of fair use. The courts reason that copyright owners should have the right to determine the circumstances of "first publication."

Use of a work that is available for purchase specifically for the educational market is unlikely to be considered a fair use. Additionally, courts tend to give greater protection to creative works; consequently, fair use applies more broadly to nonfiction, rather than fiction. Courts are usually more protective of art, music, poetry, feature films, and other creative works than they might be of nonfiction works.

FACTOR 4: EFFECT ON THE MARKET

P
A
N
E

Effect on the market is perhaps more complicated than the other three factors. Fundamentally, this factor means that if you could have realistically purchased or licensed the copyrighted work, that fact weighs against a finding of fair use. To evaluate this factor, you may need to investigate the market to determine if the work is reasonably available for purchase or licensing. For example, a work may be reasonably available when using a large portion of a book that is for sale at a typical market price.

"Effect" is also closely linked to "purpose." If your purpose is research or scholarship, market effect may be difficult to prove. If your purpose is commercial, then adverse market effect may be easier to prove. Occasional quotations or photocopies may have no adverse market effects, but reproductions of entire software works and videos can make direct inroads on the potential markets for those works.



FAIR USE BALANCING ACT

To determine whether your use is or is not a fair use, apply all four factors and avoid the "PANE" of copyright infringement. For example, conclusions cannot be based simply on whether your use is educational or commercial. You still need to evaluate, apply, and weigh in the balance the nature of the copyrighted work, the amount or substantiality of the portion used, and the potential impact of your use on the market or value of the work.

This flexible approach to fair use is critical in order for the law to adapt to changing technologies and to meet innovative needs of agile industries and educational institutions. Not all factors need to weigh either for or against fair use, but overall the factors will usually lean one direction or the other. Also, the relative importance of the factors is not always the same. Your thoughtful analysis should guide these conclusions.



CHECK YOUR UNDERSTANDING

Read the two scenarios on the following pages. Then, determine if the use described is likely to be fair use. Consider how each scenario relates to the four dimensions of fair use.



Jasmine is designing her e-portfolio website, and she includes a short poem at the top of the homepage, with author attribution. Is this fair use?

Check Your Answer

CHECK YOUR UNDERSTANDING QUESTION 1

Jasmine is designing her e-portfolio website, and she includes a short poem at the top of the homepage, with author attribution. Is this fair use?

Jasmine's use is not likely to be determined fair use.

- **Purpose:** Reproduction, not an educational purpose, and doesn't fit other approved purposes.
- **Amount:** Entire work.
- **Nature of Work:** Creative work; more likely to be covered by copyright.
- **Effect:** The poem rights could have been purchased, or use permission requested.

For Fair Use

Against Fair Use



Students working on a group project in anatomy class create a video that will be shown to peers and the teacher. They decide to rewrite the words to a popular song to help people learn the names of the bones in the human body. Is this fair use?

Check Your Answer

CHECK YOUR UNDERSTANDING QUESTION 2

Students working on a group project in anatomy class create a video that will be shown to peers and the teacher in class. They decide to rewrite the words to a popular song to help people learn the names of the bones in the human body. Is this fair use?

This student use is likely to be determined fair use.

- **Purpose:** Educational; parody.
- **Amount:** Uses background music, but not lyrics. The music is still covered under copyright, but it helps that students adapted the work and are only using part of it.
- **Nature of Work:** Original music is a creative work; tends to count against fair use.
- **Effect:** Because the work is not widely distributed, the use of the music will have limited effect on the market.

For Fair Use

Against Fair Use

Effect

Amount

Purpose

Nature

⏪
⏩

CONCLUSION

This concludes the unit on fair use. Proceed to the posttest.

Appendix E

Treatment Group Instructional Materials: Context Personalization



Introduction

Section 107 of the United States Copyright Act describes the concept of fair use, which allows you to copy copyrighted material without the owner's permission for "fair" purposes, such as criticism, parody, comment, news reporting, or certain educational situations. Whether or not your work counts as fair use depends on the facts. What exactly are you using? How widely are your materials shared? Is your work used for nonprofit or commercial purposes?

Understanding copyright and fair use laws in the fashion industry can be tricky business. This lesson will cover the four key factors of fair use to help you determine whether or not your work is covered under the fair use doctrine.

Guiding Questions

- What is fair use?
- How is fair use determined?
- What factors contribute to fair use?

Determining Fair Use

To decide whether your work is within the bounds of fair use, the law calls for a balanced application of these four factors:

1. the purpose and character of the use, including whether it's commercial or is for nonprofit purposes;
2. the amount and substantiality of the portion used in relation to the work as a whole;
3. the nature of the copyrighted work; and
4. the effect of the use upon the potential market for or value of the copyrighted work.

• The following acronym can help you remember the fair use factors: PANE (Purpose, Amount, Nature, Effect). The next few pages explain the significance of each factor, especially as they relate to fashion merchandising.

Factor 1: Purpose

P
A
N
E

The fair use statute says that nonprofit or educational purposes are generally favored over commercial uses. The law specifically lists several purposes especially appropriate for fair use, such as criticism, comment, news reporting, teaching, scholarship, or research. Courts also favor uses that are "transformative," or that are not simply reproductions. Fair use is more likely to be found when the copyrighted work is "transformed" into something new. For example you can incorporate copyrighted runway images into a blog post for critique, or perhaps place fabric prints in a presentation for teaching or inclusion in a report on recent industry trends.

These activities are common and important in the fashion industry. But, not all nonprofit or educational uses are "fair." A finding of fair use depends on your application of all four factors, not just the purpose. Limiting your purpose to some of these activities is an important part of claiming fair use.

Factor 2: Amount Used

P
A
N
E

Although the law doesn't set exact quantity limits, generally the more content you use, the less likely you are within fair use. The "amount" used is usually evaluated based on the length of the entire original and in light of how much you need to serve a proper objective. As you can imagine, sometimes the exact "original" isn't always obvious. A photo from a seasonal line of clothing might be a small portion of a catalog, but the same content published elsewhere as an advertisement or store signage could be considered the entire work in that context.

The "amount" of a work is also measured in qualitative terms. Courts have ruled that even uses of small amounts may be excessive if you take the "heart of the work." For example, a partial image of a fashion brand's handbag may be acceptable, but not if it contains the brand's signature pattern or logo. Similarly, it might be acceptable to quote a small portion of a magazine article, but not if what you quote is the journalistic "scoop." On the other hand, in some contexts, such as critical comment or parody, copying an entire work may be acceptable depending on how much you need to achieve your purpose. Photographs and artwork often generate controversies because you usually need the full image, and this may not be a fair use. However, a court has ruled that a "thumbnail" or low-resolution version of an image is a lesser "amount." Such a version of an image might adequately serve your purposes.

Factor 3: Nature of Work

P
A
N
E

This factor centers on the characteristics of the work you're using, and the law allows for a wider or narrower scope of fair use depending on those attributes. For example, if a work is unpublished, such as private reports or sketches, that "nature" can weigh against your finding of fair use. The courts say that copyright owners should have the right to determine the circumstances of "first publication."

Unpaid use of a work that is available for purchase, such as marketing material templates or presentations, is also unlikely to be considered a fair use. Additionally, courts tend to give greater protection to creative works; consequently, fair use applies more broadly to nonfiction, rather than fiction. Courts are usually more protective of art, music, poetry, graphics, and other creative works than they might be of nonfiction works.

Factor 4: Effect on the Market



Effect on the market is perhaps more complicated than the other three factors. Fundamentally, this factor means that if you could have realistically purchased or licensed the copyrighted work, that fact weighs against a finding of fair use. To evaluate this factor, you may need to investigate the market to determine if the work is reasonably available for purchase or licensing. For example, a work may be reasonably available when using a large portion of a magazine that is for sale at a typical market price.

"Effect" is also closely linked to "purpose." If your purpose is research or commentary, market effect may be difficult to prove. If your purpose is commercial, then adverse market effect may be easier to prove. For example, occasional quotes or references may have no adverse market effects, but reproducing someone else's entire clothing line or using their brand characteristics can make direct impacts on the potential markets for those works.



Fair Use Balancing Act



To determine whether or not your use is a fair use, apply all four factors and avoid the "PANE" of copyright infringement. For example, conclusions cannot be based simply on whether your use is educational or commercial. You still need to evaluate, apply, and weigh in the balance the nature of the copyrighted work, the amount or substantiality of the portion used, and the potential impact of your use on the market or value of the work.

This flexible approach to fair use is critical in order for the law to adapt to changing technologies and to meet innovative needs of agile industries and institutions. Not all factors need to weigh either for or against fair use, but overall the factors will usually lean one direction or the other. Also, the relative importance of the factors is not always the same. Your thoughtful analysis should guide these conclusions.



Check Your Understanding

Read the two scenarios on the following pages. Then, determine if the use described is likely to be fair use. Consider how each scenario relates to the four dimensions of fair use.



Jasmine is designing her e-portfolio, and she includes an image from *Vogue* of a runway model at the top of her homepage, along with the photographer's name. Is this fair use?

Check Your Answer

Check Your Understanding Question 1

Jasmine is designing her e-portfolio, and she includes an image from *Vogue* of a runway model at the top of her homepage, along with the photographer's name. Is this fair use?

Jasmine's use is not likely to be determined fair use.

- **Purpose:** Reproduction, not an educational purpose, and doesn't fit other approved purposes.
- **Amount:** Entire work.
- **Nature of Work:** Creative work; more likely to be covered by copyright.
- **Effect:** Photograph license could have been purchased, or use permission requested.



Students working on a project in a global fashion course created a forecasting report and presentation on trends in a chosen market segment. They included a 30-second clip from a music video from the region to highlight trends they've observed. Is this fair use?

Check Your Answer

Check Your Understanding Question 2


Students working on a project in a global fashion course created a forecasting report and presentation on trends in a chosen market segment. They included a 30-second clip from a music video from the region to highlight trends they've observed. Is this fair use?

This student use is likely to be determined fair use.

- **Purpose:** Educational; commentary.
- **Amount:** Uses a portion of the video, and helps that its only the piece necessary to illustrate their observations.
- **Nature of Work:** Creative piece; tends to count against fair use.
- **Effect:** Because the work is not widely distributed, the use of the video will have limited effect on the market.

For Fair Use Against Fair Use

Effect
Amount
Purpose Nature



< >

Conclusion

This concludes the unit on fair use. Proceed to the instructional survey and posttest.

Appendix F

IMMS Scoring Guide and Record of Permission to Use the IMMS Survey Instrument

IMMS Scoring Guide

Attention	Relevance	Confidence	Satisfaction
2	6	1	5
8	9	3 (reverse)	14
11	10	4	21
12 (reverse)	16	7 (reverse)	27
15 (reverse)	18	13	32
17	23	19 (reverse)	36
20	26 (reverse)	25	
22 (reverse)	30	34 (reverse)	
24	33	35	
28			
29 (reverse)			
31 (reverse)			

From “Tools to support motivational design,” by J. M. Keller, 2010, *Motivational Design for Learning and Performance*, p. 285. Copyright 2010 by Springer Science + Business Media, LLC. Reprinted with permission (Appendix A).

Record of Permission to Use the IMMS Instrument

Dear Jessica,

Thank you for your very professional request. I am most happy to give you permission to use the IMMS in your research. When you are finished, please send me an abstract and then I will tell you if I would like to see the complete study.

In case you do not have it, I am attaching a chapter from my book that contains the instrument, scoring guidance, and psychometric information.

Best wishes for a highly successful study!

Sincerely,
John K.

John M. Keller, Ph.D.
Professor Emeritus
Educational Psychology and Learning Systems
Florida State University

9705 Waters Meet Drive
Tallahassee, FL 32312-3746
Phone: 850-294-3908

Official ARCS Model Website: <http://arcsmodel.com>.

Keller, J.M. (2010), *Motivational Design for Learning and Performance: The ARCS Model Approach*. New York: Springer. Now available in English, Japanese, and Korean.

Appendix G

Posttest and Table of Specifications

Instructions: Please choose the best answer for each of the following multiple-choice questions.

(Note: Correct answers are indicated below using “***”)

1. Sam and Rob have created a fashion branding presentation for class that includes examples of advertisements from various designers’ websites. Sam feels this is fair use, but Rob worries about including the copyrighted materials. What is the best way for Sam to justify the use of the images?
 - a. The images are resized to only a portion of the original size.
 - b. The presentation will only be shown to classmates.
 - c. The images are being used for an educational purpose.
 - d. Present a balanced argument of all four factors of fair use. ***

2. Which purpose is clearly supported by fair use guidelines?
 - a. Copying apparel management software from a third-party website
 - b. Showing participants videos of commercials during a research study on perception of self-image ***
 - c. Using an audio clip of a popular movie theme song for effect during a sales event
 - d. Adding a short haiku poem, with author attribution, to the background of a window display

3. When fashion journalists write commentaries about designers’ new collections, they often include photographs to support their observations. To help ensure fair use, which practice below would limit the amount used for copyrighted photographs?
 - a. Requesting permission for use from the copyright holder
 - b. Citing the photographer directly below the image
 - c. Using thumbnail or lower resolution images ***
 - d. Purchasing the rights to use the image

4. The use of another designer’s unique fabric print is most likely to be a violation of copyright law due to which characteristic?
 - a. The nature of the original print as a creative work***
 - b. The amount of the print being used
 - c. The purpose of the use of the print
 - d. The ability to purchase rights to the original print

5. Alex created a retail marketing portfolio site and added a popular song playing in the background for effect. Because of the way Alex added the file to the site, visitors can download the song file for free. Which factor of fair use weighs strongest against Alex’s use of the song?
 - a. The effect of the use on the market since visitors can download from the site ***
 - b. The purpose of the work because it is not educational

- c. The amount of the work being used because it was over half of the song
 - d. The nature of the work because creative music is protected
- 6. The effect of the use on the market may be easier to prove when
 - a. The use is for research or commentary.
 - b. The work is used for commercial purposes. ***
 - c. Small amounts of a work have been used.
 - d. The work can reasonably be purchased or licensed.
- 7. Works of fiction tend to be more protected under copyright law than nonfiction works due to the
 - a. Nature of the work. ***
 - b. Purpose of the use.
 - c. Cost of creating works of fiction.
 - d. Effect of use on the market.
- 8. The purpose of the use of a work is more likely to be supported by fair use if
 - a. The work is transformed into something new. ***
 - b. The work is reproduced without changes.
 - c. The work is being used for a commercial purpose.
 - d. The work is previously unpublished.
- 9. Using a thumbnail of an image, rather than the original full-resolution image, favorably supports which factor of fair use?
 - a. The purpose of the use
 - b. The amount being used ***
 - c. The nature of the original work
 - d. The effect of the use on the market
- 10. Which of the following is NOT a generally accepted purpose for fair use?
 - a. News reports
 - b. Research
 - c. Criticism
 - d. Reproductions***
- 11. An instructor is showing a movie in class. Which is NOT an appropriate strategy to reduce effect of the use on the market?
 - a. Purchase the rights to show the movie
 - b. Request permission from the copyright holder
 - c. Provide purchasing information and have students watch or rent independently
 - d. Show the film since it is for a small audience ***
- 12. An instructor used a high-resolution picture of a famous painting for a recorded video lecture. Is this sufficient information to determine fair use?
 - a. The information is sufficient because the painting is used for an educational purpose.

- b. This use is fair because it has a limited effect on the market.
 - c. This use is not fair because, as a painting, it uses the entire work.
 - d. More information is necessary to determine fair use. ***
13. Comedians often create parodies of popular songs and movies. This type of use is permissible due to which of the four factors of fair use?
- a. The purpose of the parody work ***
 - b. The amount of the song or movie being used
 - c. The nature of songs and movies
 - d. The effect of the parody on the market
14. For an American History class video project, Flora compiled pictures and excerpts of letters written between her aunt and her uncle, who was killed in action during military service in Vietnam. Flora showed the finished product to her aunt, who asked Flora not to publish the video because the letters had been private. Which of the four factors of fair use supports her aunt's request?
- a. The nature of the letters and pictures ***
 - b. The purpose of the video
 - c. The amount of the letters and pictures used
 - d. The effect of use of the letters and pictures on the market
15. A team of students in a technology course created a blog exploring the relationship between technology and nature. As part of the blog website, the students added a short, 30-second clip showing the most dramatic scene from the popular movie *AVATAR*. Students felt that their use was fair because of the length of the clip, but they may still face a copyright violation for use of the clip due to
- a. The use of the heart of the work. ***
 - b. The use of the Internet as a delivery mechanism.
 - c. A limited educational purpose.
 - d. The effect the use may have on the market.

Table of Specifications

Question categories, question types, and corresponding item numbers.

Category	Recall	Transfer- General	Transfer- Personalized
General	10	12	1
Purpose	8	13	2
Amount	9	11	3
Nature	7	14	4
Effect	6	15	5

VITA

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Education

Doctor of Philosophy

Expected December 2017

Instructional Design and Technology

Dissertation: *The Effects of Group-Based Context Personalization on Learning Outcomes and Motivation*. Chair: Ginger Watson, Ph.D.

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December 2012

Instructional Technology

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Bachelor of Arts

May 2010

English and English Education, Summa Cum Laude

University of Pittsburgh, Bradford, PA

Professional Experience

Director, Center for eLearning Initiatives

May 2015 - Present

Penn State Erie, The Behrend College, Erie, PA

Instructional Designer

January 2013 - May 2015

Penn State World Campus, University Park, PA

Secondary English and Geography Teacher

August 2010 – January 2013

Keystone School District, Knox, PA

Teaching Experience

Edinboro University of Pennsylvania

EDUC 788: Research in Education

SEDU 731: Applications of Technology Integration in Education

SEDU 732: Design and Delivery of Instruction for eLearning

SEDU 733: Adapting Instruction for an Online Learning Environment

Butler County Community College

Lifelong Learning Courses: iPad and Mobile Phone

Publications

Resig, J., Moore, A., Bong, J., Oyarzun, B., Rabel, D., & Conklin, S. (2017). Graduate student reflections on participating in the AECT Design and Development Competition. *TechTrends*, 61(3), 99-100.

Robinson, S. & **Resig, J.** (2015). Providing for uncertainty and risk in learning games: Reasons and research. In Lindgren, L., Smith, B., & DeLong, D. *The Art and Science of Marketing Education: 2015 Annual Fall Conference Proceedings*, San Juan, Puerto Rico.

Resig, J. & Hitchcock, J. (2014). *Too many courses, not enough time? Supporting scalable, collaborative design*. Paper presented at the Annual Conference on Distance Teaching & Learning Conference Proceedings, Madison, WI.

Conference Presentations

Resig, J., & Watson, G. S. (2016, October). *Personalization: The effects of conversational language in text-based online instruction*. Presented at the Association for Educational Communications and Technology International Convention, Las Vegas, NV.

Resig, J., Watson, G. S., & Maddrell, J. (2016, October). *Badging for good: Perceptions of earning a digital badge in a service MOOC*. Presented at the Association for Educational Communications and Technology International Convention, Las Vegas, NV.

Resig, J. (2015, November). *Creating a course evaluation toolbox*. Presented at the Association for Educational Communications and Technology International Convention, Indianapolis, IN.

Grants

- Janet Neff Sample Center for Manners and Civility Grant (2017). Fostering Civility in Online Learning Environments. PI: J. Resig. \$975.
- Keystone Education Foundation Grant (2011). Classroom technology integration for communications instruction. PI: J. Resig. \$5,000.

Professional Affiliations and Activities

Association for Educational Communications and Technology

- Cochran Leadership Intern, 2017-2018
- Design and Development Division Board Associate, 2016 – Present
- GSA Representative to the Design and Development Board, 2015 – 2016

Online Learning Consortium

- Institute for Emerging Leadership in Online Learning Participant

Honors

- 2017 Online Learning Consortium Institute for Emerging Leadership in Online Learning Penn State Scholarship Recipient
- 2016 Association for Educational Communications and Technology (AECT) Design and Development Division Outstanding Practice Award Recipient for Open ABE Service-MOOC. Recognized as part of design and facilitation team.
- 2014 AECT PacifiCorp Instructional Design Competition Finalist